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ROCK-INSCRIPTIONS OF THE "ANCIENT PUEBLOS" OF COLORADO, UTAH, NEW MEXICO, AND ARIZONA.

BY EDWIN A. BARBER.

THE picture-writings or hieroglyphics of this ancient architectural and agricultural race consisted of *ideographs*, or symbols representing ideas, the object pictured standing for the word to be expressed. So we can see that the method employed for recording events was very imperfect and limited, reaching scarcely beyond the *nouns*, although in some cases they represented *action*, or *verbs*, as in the sketching of men dancing or running. By a careful study of these pictographs and rock-etchings, much relative to these people can be obtained, although many of the symbols are not decipherable. Indeed, it has not been proved that there was any *regularity* or *method* in thus recording events; we know not whether each historian used a peculiar mode of his own for the transmission of ideas, or whether there was a recognized plan which the most educated of the tribe adopted.

I noticed that throughout those ancient inscriptions which are undoubtedly coeval with the ruined buildings and which appear in their vicinity, a common representation was that of an animal closely resembling the domestic goat. This may have been intended for the Rocky Mountain sheep or big-horn, as this animal was plentiful throughout the country four centuries ago, although now it does not occur along the valley of the San Juan River. The horns are represented as long, heavy, and curved backwards. As the goat is not indigenous to America, the flocks or herds of the ancients consisted probably of some of the domesticated wild animals which abounded in that country. The Rocky Mountain goat is in reality an antelope; the big-horn once roamed through Arizona and the mountains of New Mexico. We discover from the accounts of the early Spaniards, who penetrated through this country, that many tribes of Indians which peopled it possessed flocks and herds, though of what nature, we are not informed. Many of the natives clothed themselves in garments made of the hair of the wild sheep, while other tribes wore cotton clothing. Coronado in 1540 wrote of the country of Cibola or Zuñi, "Here are also wild goats, whose heads likewise I have seen." These were probably the Rocky Mountain goats or sheep. Gomara (another Spaniard) remarks in his history relative to this country, about the same time, "There are also great dogs which will fight with a bull, and will carry fifty pounds' weight in sacks

when they go on hunting or when they remove from place to place with their *flocks* and *herds*."

The horse was not known to the natives of America at the time of the conquest, although remains of it occur in a fossil state. Therefore we find no representation of this animal in the ancient inscriptions.

Throughout this entire country the Navajo Indians and the Utes and Pah-utes have covered the walls of bowlders with representations of more recent date, in which the horse figures conspicuously; but these inscriptions can be readily distinguished, by an experienced eye, from those possessing on their very faces the impress of centuries. Indeed, some of them have become entirely effaced, and others are so nearly obliterated that it is only after the most careful study and the most attentive observation that they can be at all distinguished. We do not find in this section many *painted* or *colored* representations; the majority of them are etched or engraved in the rock by the agency of stone implements, such as chisels, awls, etc. In the vicinity of nearly every important congregation of structures these are common on the cliffs and vertical rock-faces. Often they are found in the most inaccessible places and in the neighborhood of the more dangerously located cliff-dwellings. Sometimes they can be descried on a perpendicular wall at a height of hundreds of feet, between the valley below and the summit of the mesa above, but how they could have been cut there we are at a loss to conjecture. They must have been engraved in such cases either from the top of a very long ladder, or by the operator being suspended from above by a long rope of rawhide or sinew; or there may have been, long ago, ledges in the now smooth face of the rock, and steps may have led up to the summit. Such an inaccessible inscription I noticed on a high wall on the north bank of the San Juan River, above the Rio de Chelly. The figures represented three immense centipedes, being several feet each in length, and situated at least two hundred feet above the river. The snake, turtle, and frog are common objects in the hieroglyphics, and these animals were probably held in veneration by the ancients, just as they are now by their descendants in New Mexico and Arizona, being looked upon as the lesser divinities of water. Rude human figures and hands, and feet of birds and animals, such as the eagle or bear, are numerous, but the commonest and most suggestive likeness is that of the human hand. In many of the ruins and frequently on the walls above cliff-

houses are these representations to be seen in great numbers. They have been formed by placing the outspread palms against the rock and spattering mud or paint around them, leaving an accurate and natural-sized outline of the original. These we noticed of all sizes, frequently in pairs, with the thumbs touching. It is impossible to say whether they were intended to convey any particular idea, or whether they were daubed on the walls in idle moments. However, they are the most instructive objects of the ancient picture-writing, and give the ethnologist an important clew to the original people, in the shape, size, and appearance of the hands. We can see that some of them (probably those of children and females) were symmetrical, delicately molded, and beautiful, while many more (undoubtedly those of the adult laborers) were large, rough, and powerful. These occur more particularly in the *Casa del Eco* (a cave-house on the San Juan) and above a collection of cliff ruins near Epsom Creek, in Utah. The illustration (Figure 61) will convey a better idea of them.



(FIG. 61.) ANCIENT HAND-PRINTS ON THE ROCKS, NEAR EPSOM CREEK, UTAH.

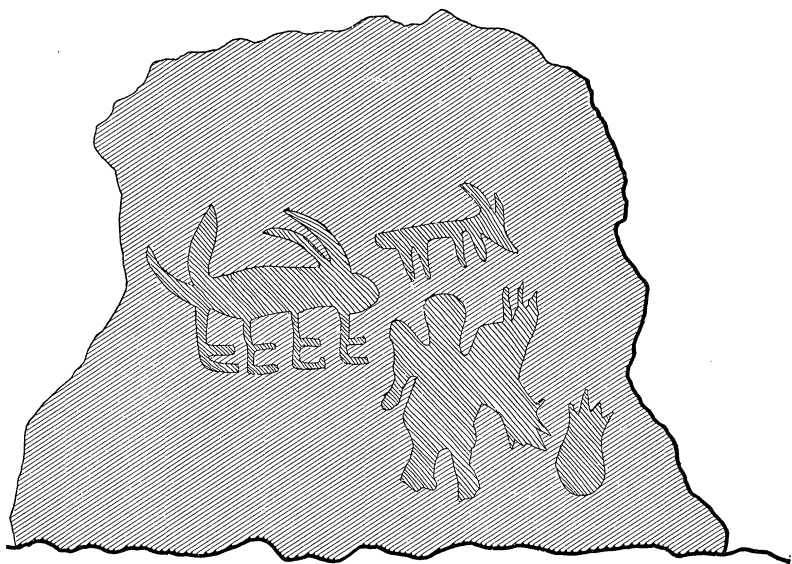
Just to the west of Ute Mountain, on a boulder of rock near the old Indian trail leading down the McElmo arroyo, in Southwest Colorado, is an ancient inscription representing a man, two deer or elk, and several characters intended for either the feet or the foot-prints of a human being, or of a bear (Figure 62).

Now as there are deer and bear on the neighboring mountain, this may be the record of an event, and may possibly be translated thus: A hunter, observing the tracks of a bear, trailed him some distance, and instead of discovering the bear overtook two deer or elk, which he slew. The figures may be intended for either, probably the latter, one full-grown and the other smaller.

There have been no *written* accounts discovered among the remains of the "Ancient Pueblos,"¹ nothing but these hieroglyphics, and by the employment of the latter symbols the In-

¹ Mr. J. H. Beadle says of the Zuñians who now occupy a town in New Mexico, "They formerly had the art of writing, but appear to have lost it in their many mutations. They preserve one book, but the last man who could read it died many years ago, and the priests regard it merely as a holy relic. It consists simply of a mass of finely dressed skins, bound on one side with thongs; the leaves are thickly covered with characters and drawings in red, blue, green — squares, diamonds, circles, serpents, eagles, plants, flying monsters, and hideous human heads. One of their *Caciques* says it is the history of their race, and shows that they have moved fourteen times, this being their fifteenth place of settlement."

dian tribes of to-day transmit accounts of their principal events to their children. Battles and unusual incidents of great ceremonies are thus recorded, as, for instance, on the interior of the canvas of a *Ute wick-e-up*, at the White River Agency, in Northwestern Colorado, I observed the elaborate representation of a battle in which the Ute tribe had been engaged against the Arapahoes. There were seven horses which had been captured, beside a bow and quiver of arrows, an elegant red pipe made of the Catlinite from the *Coteau des Prairies* and bound with silver bands, and some furs and blankets, while the captors



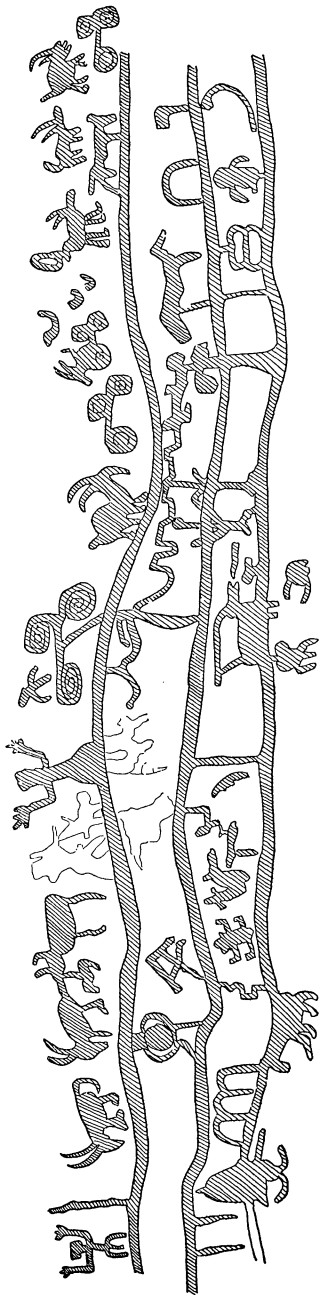
INSCRIPTION NEAR UTE MOUNTAIN, S.W. COLORADO.

(Fig. 62.)

were figured riding behind with scalps and other trophies dangling from their lances or spears. This was explained to me by the artist, one of the head men of his tribe, and the foremost in the skirmish. In another lodge at the same place I noticed the recorded history of a memorable buffalo or bison hunt.

This method of perpetuating incidents has been employed by North American tribes for centuries, but beyond this neither advancement nor improvement has been made.

One of the best preserved and most interesting of ancient inscriptions we copied from the wall of a rock situated beneath some extensive ruins in the valley of the Hovenweep, where it joins the McElmo in Southwestern Colorado. Sheltered by an



(FIG. 63.)

ANCIENT RECORD AT THE JUNCTION OF THE MC ELMO AND HOVENWEEP, S.W. COLORADO.

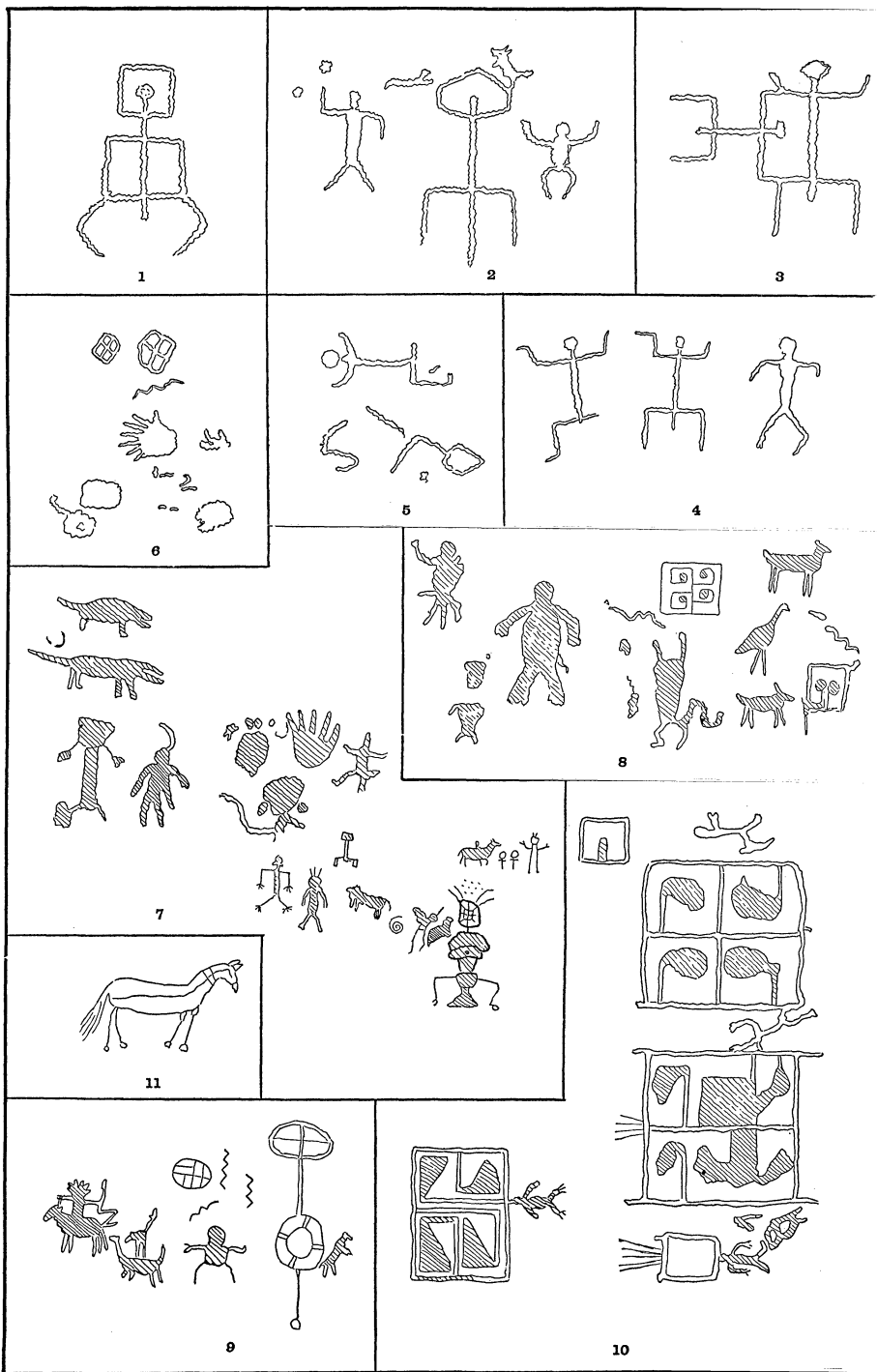
overhanging ledge, the original characters had been tolerably well preserved from the elements, but the wind constantly sifting fine sand against it had rendered the figures and lines in places somewhat obscure. The work had been done with a blunt chisel by pecking off little chips of the sandstone. The figures average a foot in height, and are arranged on three approximately parallel lines, which extend for perhaps fifteen feet. Figure 63 is a copy of the original. Here we see frequently pictured the mountain sheep (?), and we can recognize the snake, tortoise, and a bird flying out of a tree. There are also human beings, more birds, a bear, and numerous undecipherable characters. The legend may have been read along the lines, commencing at the left-hand upper corner, or it may have been perused after the Chinese manner, beginning at the other end.

In the Cañon of the Mancos Mr. W. H. Jackson discovered a simple inscription wherein are figured a bird, a goat (or deer), a man, and several snakes or ornamental designs.

Along the banks of the Gila Lieutenant Emory saw many etchings on the rocks which were probably the work of modern Indians. But "others were of undoubted antiquity, and the signs and symbols intended, doubtless, to commemorate some great event. One stone bore on it what might be taken, with a little stretch of the imagination, for

a mastodon, a horse, a dog, and a man. Their heads are turned to the east, and this may commemorate the passage of the aborigines of the Gila on their way south." It is evident, however, that these etchings were of comparatively recent date, from the presence of the horse, unless the figure was designed for some other animal, which seems probable. The presence of the mastodon is also extremely doubtful, and we must indeed stretch our imaginations in order to believe that this ancient animal was known to these people and pictured in their hieroglyphs, for although their antiquity may be great, they certainly do not date back to the quaternary period.

Mr. W. H. Holmes, in charge of one of the branches of the United States Geological Survey of the Territories, discovered a number of singular inscriptions, some of them evidently of modern workmanship, but many of them of almost undoubted antiquity. Figures 1, 2, and 3, Plate XIII., were copied from the rocks near the Mancos in the vicinity of some of the cliff-houses. The majority of these figures were intended to portray the human form, though in grotesque shapes and attitudes. In Figure 2 may be seen one or two representations of animals, though what they may have been designed for it is impossible to determine. Figures 4, 5, and 6 occur near the others, painted in red and white clay. Mr. Holmes thinks that "these were certainly done by the cliff-builders, and probably while the houses were in process of construction, since the material used is identical with the plaster of the houses. The reproduction is approximately one twelfth the size of the original." The remainder of the figures on this plate and those given on Plate XIV. were seen ten miles below the mouth of the Rio la Plata, on the San Juan River. All of them have been etched in the rocks, and the bodies of the figures have been generally chipped out, sometimes to a depth of a quarter or a half of an inch. In Figure 8 of Plate XIII. we can distinguish several objects, as a bird, a deer, several fanciful designs, and two men with tails. These latter may represent monkeys, although from their size and appearance they resemble more a pair of tailed human beings. In Figure 7 occur two animals resembling huge lizards; they are probably intended for disproportioned sand-lizards, and not alligators. Figure 11 is without doubt a recent Navajo drawing of a horse. Figure 10 is comparatively ancient, somewhat resembling the prevalent patterns to be seen on the ancient pottery. Figure 9 is more modern, as may be seen from the presence of the horse.

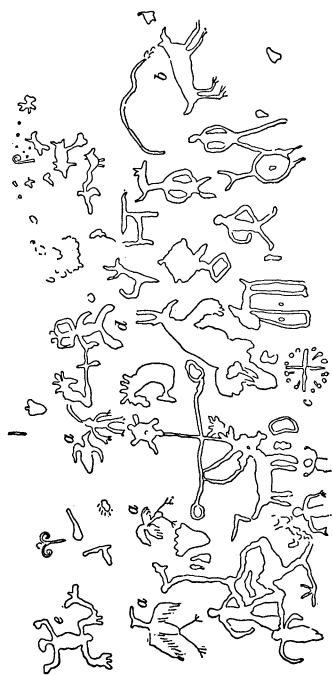
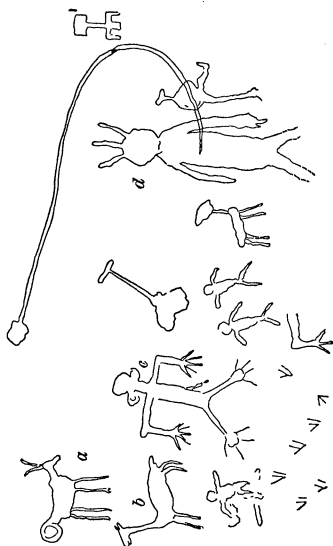
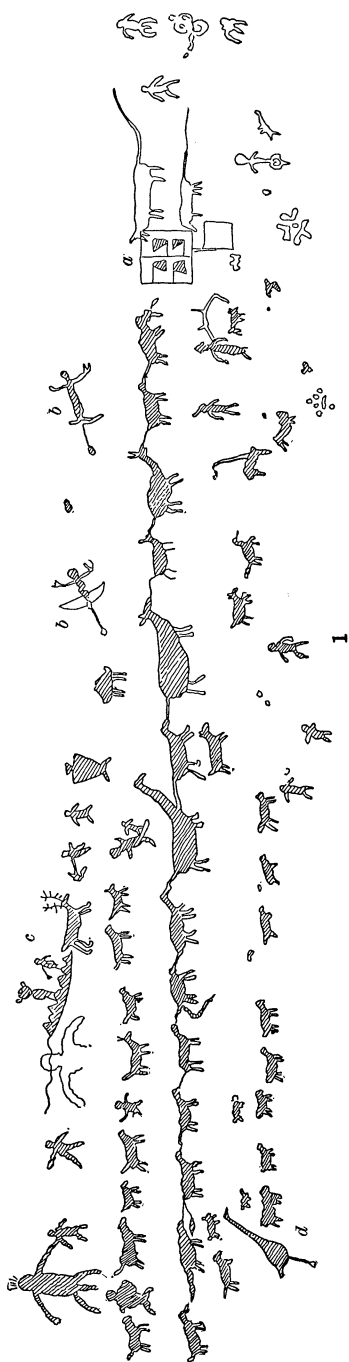


In Plate XIV., Figure 1 is a procession of animals, the majority representing deer and elk. The inscription is possibly intended to chronicle a great migration of an ancient tribe with their flocks and herds. At *c* is what appears to be a reindeer drawing a sledge which contains two human figures. Might not this be the record of a traditional migration from the north? Through the procession are scattered men and birds, and two winged figures at *b b* seem to be hovering in the air. At *a* are two long-tailed animals resembling the American panther; they seem to be entering a trap. The whole picture is about one twelfth of the original in size.

Figures 2 and 3 are copies of portions of considerable inscriptions, these being the least obscure. They are evidently very old, and in many places almost obliterated. In Figure 2 can be distinguished several birds at *a a a*, the lower two in all likelihood representing eagles; *b* is an unknown animal, possibly a bear; *c* is a geometrical design for ornamentation; *d* may be a representative of the family of marsupials, and *e* a man. The figures of the etching are so complicated that it is difficult to distinguish many of them. In Figure 3 is a representation of a Rocky Mountain sheep at *a*; *b* resembles either a llama or a female deer; *c* and *d* are distorted images of the human form. There are also prints of birds' feet, and the upper figure appears more like a comet than anything else.

From the preceding remarks we see that the ancients possibly represented several animate objects, which do not occur within the limits of the United States. It would seem, then, that they held communication with other tribes in widely separated sections. The presence of the reindeer makes it appear highly probable either that the people had reached their southern homes from the far north, or that they had at least held intercourse at one time with northern tribes. If we can identify the llama in their inscriptions, we establish the fact that they corresponded with the people of South America. This, however, is a matter of doubt, and we can arrive at no satisfactory conclusion from a careful examination of such rude figures.

The whole subject is enshrouded in an impenetrable obscurity, and all our attempts to pierce it result in conjecture and doubt. That many of the hieroglyphical records are very ancient we cannot deny, yet it is impossible to know where to draw the line of separation between such and those of more modern date. The oldest, and those of undoubted coexistence with the most ancient



of the ruins, are entirely obliterated by the ravages of centuries. We can simply go back a few hundreds of years and infer that these inscriptions may have been copied from still older ones, which have long since disappeared.

These discoveries are the results of the explorations of several parties of the United States Geological and Geographical Survey of the Territories, in charge of Prof. F. V. Hayden, and Plates XIII. and XIV. have been kindly furnished to me by him for this paper.

MICROSCOPY AT THE INTERNATIONAL EXHIBITION.

BY R. H. WARD, M. D.

IN briefly reviewing the microscopes exhibited at the American Centennial Exhibition, just closing at Philadelphia, it will be convenient to classify them in three more or less natural groups: the Continental, English, and American. All these classes are largely and characteristically represented by the most interesting and in many cases by the most distinguished examples of their kind, affording to microscopical students the best opportunity yet furnished in this country to study and compare the various types and qualities of tools available for their work.

It will be expedient to mention first, however, a few isolated and unclassifiable exhibits which are still of sufficient interest to demand a passing notice, such as a very small upright educational microscope of no well-marked character, from Switzerland; a small instrument from Tokio, Japan, which is evidently an early if not a first attempt, and a not unsuccessful one, though of unpretending form and crude workmanship, to imitate the instruments in vogue in this country a score of years ago; and a couple of large, clumsy instruments from Canada, one of them from Montreal and the other in the educational exhibit from Toronto, of which it can only be hoped that they do not fairly represent the science and art of our Canadian friends, since they are wholly devoid of any evidence of the spirit of that progress which has so fully and so fortunately changed the microscope from a piece of furniture to a tool for scientific work, and are in fact excellent illustrations of what a microscope ought not to be for educational purposes.

The continental microscopes are chiefly represented by the exhibit of Nachet, of Paris, whose compact, ingenious, elaborate, and thoroughly built instruments are present in large numbers and